

505-7.

Carl Hering
Feb. 26, 1908



BULLETIN NO. 637

[JUNE 1908]

TYPE "K" ARC LAMPS



FIGURE 1. STANLEY-G. I. TYPE K ARC LAMP FITTED WITH NO. 1007518 STANDARD REFLECTOR, NO. 74 SPAL LOCKER AND NO. 25 GLASS COVER GLASS. GENERALLY THE MOST SATISFACTORY COMBINATION FOR OUTDOOR USE.

THE STANLEY-G. I. TYPE "K" ARC LAMPS.



Figure 1 Type K Arc Lamp, with glassware for interior lighting.

A new line of Stanley-G.I. Arc Lamps, known as the Type K. is herewith presented. The "K" lamp has been on the market for about a year and several thousand of them are in service to-day. It is possible in this bulletin, therefore, to discuss a known quantity, and one that, in operation, has exceeded the expectations of its designer.

This bulletin will describe the Type K multiple line, direct current and alternating current and the direct current power circuit lamp. The external appearance does not vary, and therefore Figure 1 illustrates either type.

Figure 1 also illustrates the best combination of reflector and glassware for general outdoor illumination. It consists of No. 1004 fire enameled reflector, opal inner and clear glass outer globe. For interior lighting the arrangement shown by Figure 2, consisting of opal

inner and opal outer globe, provides the best diffusion and a most evenly lighted room. Over 2000 Stanley-G. I. Arc lamps with this combination of glassware, recommended by Stanley-G.I. engineers, are used by John Wanamaker for the illumination of his New York and Philadelphia stores.

If it is desired to concentrate the light directly under the lamp, an equipment consisting of light opal inner globe and Catalog No. 38 porcelain reflectors (illustrated on page 13) affords the best combination.

The discussion of Arc Lamps used to refer particularly to efficiency, power factor etc. To-day, next to mechanical simplicity and indestructibility of working parts, the subject of glassware is conceded to be of primary importance. For instance, if two direct current multiple lamps are

operated side by side, trimmed each with half-inch carbons of the same make, and when tested are found to be consuming 5 amperes, with 80 volts at the arc—400 watts, which is standard practice—it will be found that they are emitting an identical amount of light.

If, under such conditions, one of the lamps is apparently giving more and whiter light than the other, either the carbons in the other lamp are defective or better judgment has been exercised in the selection of the glassware for the lamp giving the superior light. Dissatisfaction with arc lamp illumination is more often attributable to the improper selection of glassware than to inherent defects in the lamps.

The importance of correct "Glassware Engineering" will perhaps be more readily appreciated, when it is explained that oftentimes by sacrificing 50 per cent. of the light by the use of dense opal glass, the remaining 50 per cent. of useful light is more available and better suited to the conditions to be met than the 100 per cent. would be with improper glassware.

The Stanley-G.I. Electric Mfg. Company has established an Illuminating Engineering Department, for the sole purpose of assisting users and prospective purchasers of arc or incandescent lamps in the selection of proper illuminating apparatus. If drawings, showing obstructions such as posts, belts, machines, etc., and the dimensions of area to be lighted, the height of ceiling, etc., are forwarded to this department, suggestions will be furnished as to the absolutely correct method of making the lighting installation **This service is free.**

A few prominent concerns who are using the Stanley-G.I. Type K arc lamps are herewith mentioned. You are invited to ask any of these concerns for an expression of their opinion as to the lamps in question.

The Fair Department Store, Chicago.
American Car & Foundry Co., St. Louis.
Chicago Edison Co., Chicago.
Laclede Power Co., St. Louis.
Boston Store, Providence, R. I.
Norfolk Navy Yard, Norfolk, Va.
Mautner & Freund, Electrical Contractors, New York City.
Max Rubel & Company, New York City.
LaGrange Service Co., LaGrange, Ill.
Mountain State Electric Co., Wheeling, W. Va.
Perry Knitting Co., Perry, N. Y.
York Haven Water & Power Co., York Haven, Pa.
Commercial Electric Supply Co., St. Louis, Mo.
Eaton Hurlbut Paper Co., Pittsfield, Mass.
New York, New Haven and Hartford R. R., New Haven, Conn.
Traction & Terminal Building, Indianapolis, Ind.
Varney Electrical Supply Co., Indianapolis, Ind.

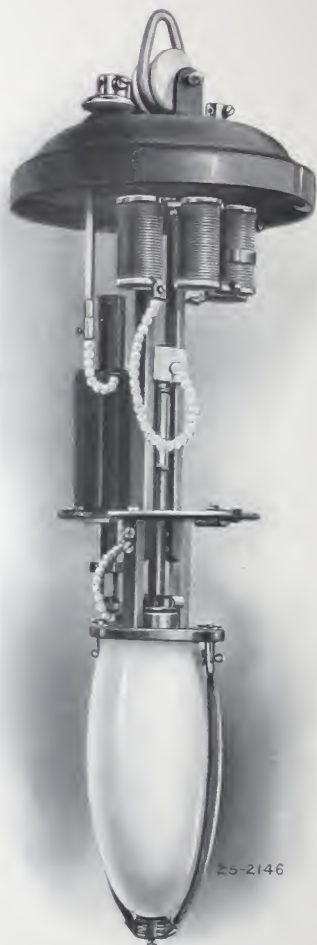


FIGURE 3. STANLEY - G. I. TYPE K-31 MULTIPLE D. C. ARC LAMP.
CIRCUITS OF 100 TO 125 VOLTS.

THE STANLEY-G. I. K-31 MULTIPLE D. C. ARC LAMP.

Note the extreme simplicity of the K-31 Lamp as evinced by the illustration on the opposite page. Observe particularly the absence of any insulation composed of asbestos or rubber, etc. Non-inflammable insulation, i. e. glass beads, tested for heat and guaranteed to withstand all possible conditions, is used exclusively.

Until recently the "center tube construction" has been considered the best practice in modern arc lamps manufacture, but after extensive experiments, the K lamp has been designed so that the center tube is unnecessary and only one moving lead is required.

Resistances wound on porcelain bobbins (four in number) can, if damaged, be replaced separately or collectively in less than two minutes, by removing two clips. All repairs can be made at the lamp, so that in the event of any failure it is merely necessary to send a man there to replace a part or make a repair and not necessary to have the lamp "taken in" to the station. The magnet is wound with specially treated wire and is practically indestructible. The clutch is simple, absolutely sure and reliable and has a direct pull, no binding. Two hundred hours' life from one trimming.

LIST PRICES OF STANLEY-G. I. TYPE K-31 ARC LAMPS.

Standard adjustment, 5 amperes. Any voltage from 100 to 125.

SINGLE GLOBE TYPE (Inner globe and opal No. 38 reflector)	(Steel)	26.00
	(Copper)	27.00

DOUBLE GLOBE TYPE (Inner and outer globe—either clear or opal glass.)	(Steel)	27.00
	(Copper)	28.00

If No. 1004 Metal Reflector is desired add \$2.00 List to above prices.
Discounts given upon application.

Lamps Adjusted for Five Amperes
are Standard and are Carried in Stock



FIGURE 4. WANAMAKER'S, NEW YORK CITY, THE LARGEST DEPARTMENT STORE IN THE WORLD. BOTH BUILDINGS LIGHTED EXCLUSIVELY BY STANLEY-G. I. ARC LAMPS.

THE STANLEY-G. I. K-41 MULTIPLE D. C. ARC LAMP.



The general characteristics which distinguish the K-31 Lamp obtain also in the K-41. There is added a fifth bobbin with band clamp in multiple with the solenoid in such a manner that the current may be adjusted for any value ranging from 3 to 6 amperes. The simplicity and convenience of this arrangement are very evident.

LIST PRICES OF STANLEY-G. I. TYPE K-41 ARC LAMPS.

Adjustable for any current from 3 to 6 amperes and for any voltage from 100 to 125.

SINGLE GLOBE TYPE

(Inner globe and opal) Steel	26.00
No. 38 Reflector) Copper,	27.00

DOUBLE GLOBE TYPE

(Inner and outer globe (Steel	27.00
either clear or opal)	
glass) Copper	28.00

If No. 1004 metal reflector is desired, add \$2.50

List to above prices.

Discounts given on application.

FIGURE 5. TYPE K-41 LAMP WITH NO. 10 BULB.



FIGURE 6. SHOPS OF AMERICAN CAR & FOUNDRY CO., SOUTH ST. LOUIS WORKS,
LIGHTED BY STANLEY-G. I. ELECTRIC MFG. CO.'S TYPE K ARC LAMPS.

25-2147

THE STANLEY-G. I. K-22 MULTIPLE D. C. ARC LAMP.



The mechanical construction of the type K-22 (220 volt) arc lamp is identical with that of the regular D. C. 110 volt multiple type already described, except that there are six porcelain bobbins wound with sufficient resistance for a line voltage of from 200 to 250. These bobbins are fitted with movable clips by means of which the lamp may be adjusted to operate on any line voltage between 200 and 250 volts, at the current for which the lamp is wound (3 amperes). A most important feature of this lamp is the ease with which the entire resistance and also the magnet spool can be removed and replaced by 110 volt resistance and magnet, thereby readily converting the lamp to a K-31 for 110 volt service. By carrying in stock a few extra windings and resistances it is possible to make these changes without taking the lamp out of service. The K-31 may likewise be as readily converted into a K-22.

FIGURE 7. K-22 ARC LAMP.

LIST PRICES OF STANLEY-G. I. TYPE K-22 LAMPS.

Standard adjustment, 3 amperes. Any voltage from 200 to 250 volts

SINGLE GLOBE TYPE	{ Steel	28.00
(Inner globe and opal No. 38 reflector)	{ Copper	29.00

DOUBLE GLOBE TYPE	{ Steel	29.00
(Inner and outer globe—either clear or opal glass)	{ Copper	30.00

If No. 1004 metal reflector is desired add \$2.50 list to above prices.
Discounts given upon application.

**Lamps Adjusted for Three Amperes
are Standard and are Carried in Stock**

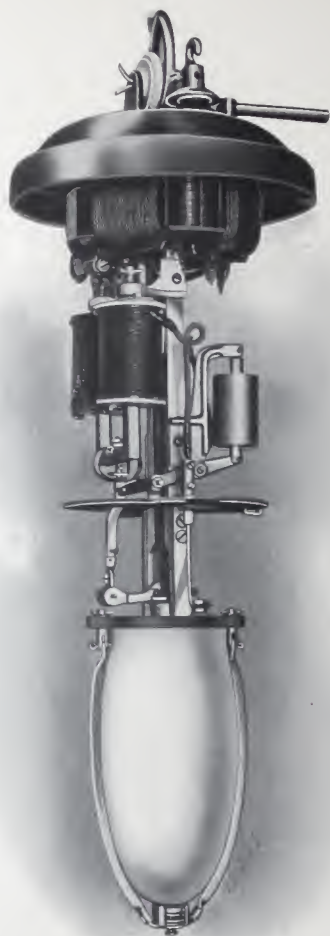


FIGURE 8. STANLEY-G.I. TYPE K-16 ARC LAMP
FOR MULTIPLE ALTERNATING CURRENT
CIRCUITS, 50 TO 140 CYCLES.

THE STANLEY-G. I. TYPE K-16, MULTIPLE ALTERNATING CURRENT, ARC LAMP.

The leading features of the K-16 (as with all other Type K Lamps) are simplicity and accessibility combined with perfect regulation and first class, strong, rigid, mechanical construction. Each part is so located that it can correctly perform its proper function, but no part is inaccessible. The cut of the lamp on the opposite page clearly indicates this point. For example, the dash pot complete may be entirely detached from the lamp by simply removing two cotter pins. The series spools may be quickly disengaged from the lamp by removing two cotter pins and breaking two connections. The whole top with choke coil attached may be removed by taking out two screws and breaking one connection. The core spring is of formed and tempered steel ribbon, and has no sharp bends, making it particularly strong and not likely to break. A replacement can be conveniently made, however, if necessary. The lamp can be readily adjusted by means of a flexible connection to loops on the choke coil. The top, switch, two rod frame, upper carbon holder with flexible connection, clutch, trim, shell, glassware and reflectors are identical with those of all other Type K lamps for any class of service.

LIST PRICES OF STANLEY-G. I. TYPE K-16 ARC LAMPS.

Standard adjustment, 6 amperes. Any voltage from 100 to 125.

SINGLE GLOBE TYPE	{ Steel.....	33.00
(Inner globe and opal No. 38 reflector)	{ Copper....	34.00

DOUBLE GLOBE TYPE

(Inner and outer globe—either clear or opal glass)	{ Steel.....	34.00
	{ Copper....	35.00

If No. 1004 metal reflector is desired add \$2.50 list to above prices.

Discounts given upon application.

THE STANLEY-G. I. TYPE K-9 ARC LAMP.

The K-16 Lamp may have an auto-transformer arrangement combined with the choke coil, making it available for 200 to 250 volt a. c. multiple circuits.

When so arranged it retains the same external appearance as the other K Lamps and is designated as Type K-9.

Add \$2.00 to K-16 prices to get corresponding list prices for K-9.

Discounts given upon application.

Standard adjustment, 200 to 250 volts, 6 amperes, 72 volts at the arc.

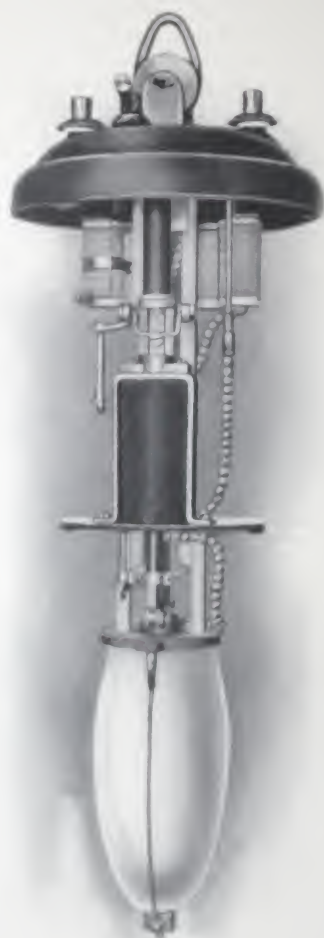


FIGURE 4. STANLEY-G.I. TYPE K-25 DIRECT CURRENT
POWER CIRCUIT ARC LAMP.

THE STANLEY-G. I. TYPE K-23 LAMP.

D. C. POWER CIRCUIT LAMP WITH NO SHUNT WINDINGS.

The cut on the opposite page shows the mechanism of the new lamp for Multiple-Series connection on 200 to 600 volt constant potential direct current Light, Power and Railway Circuits. This lamp is designed to operate two, three, four, five or six in series, the only limitation being that each lamp shall have at least 90 volts and not more than 125 volts at the terminals.

The ordinary conditions under which these lamps are required to operate are two in series on 200 to 250 volt light and power circuits, and five in series on 450 to 600 volt power and railway circuits.

The construction of this lamp is identical with the K-31 (Multiple 100 to 125 volt direct current) lamp, except that it is equipped with an auxiliary arc regulating weight and lever device. This device, when lamps are properly adjusted, will always maintain the arc voltages of all the lamps of a series within 5 volts of each other. By this arrangement the use of a shunt winding of any kind is absolutely avoided. It is possible to convert any K-31 lamp to K-23 type by substituting the lever device referred to for the corresponding magnet and dash pot parts ordinarily used.

Each lamp has a proportionate part of the total regulating resistance mounted in its top, so that no *separate resistance* of any kind is necessary.

LIST PRICES OF STANLEY-G. I. TYPE K-23 ARC LAMPS.

Standard adjustment, 5 amperes.

SINGLE GLOBE TYPE	{ Steel.	29.00
(Inner globe and opal No. 38 reflector)	{ Copper.	30.00

DOUBLE GLOBE TYPE

(Inner and outer globe—either clear or opal glass)	{ Steel.	30.00
	{ Copper.	31.00

If No. 1004 metal reflector is desired add \$2.50 list to above prices.

Discounts given upon application.

THE STANLEY-G. I. TYPE K-33 ARC LAMP.

The standard K-23 lamp has no cut-out, and if the arc in any lamp of a series fails, due to need of trimming or other cause, all the other lamps of the series will go out.

At a cost of \$7.00 list extra per lamp, each lamp will be made up with a cut-out which will automatically cut into the circuit a self-contained, compensating resistance in case the arc in the lamp fails, thus balancing the circuit and allowing the remaining lamps in the series to continue burning without interruption. This will be known as the K-33 lamp in order to distinguish it from the lamp (K-23) without cut-out and compensating resistance.

To allow for trimming, a hand switch is provided on each K-33 lamp, which cuts in the compensating resistance, permitting a lamp to be trimmed or adjusted without affecting any of the other lamps in the series.

SHELLS.

Standard K Shells are made of either copper or of steel.

The Stanley-G. I. Electric Mfg. Company recommends that copper shells *always* be used on lamps intended for out-of-door service.

Standard Finishes of Copper Shells are:

1. Mottled Copper
2. Black Oxidized Copper

Standard Finishes of Steel Shells are:

1. Dull Black Enamel
2. Bright Enamel
3. Black Oxidized Copper
4. Mottled Copper

(The last two finishes are obtained by electroplating copper upon the steel, and shells thus treated are not recommended for out-of-door service.)

Solid Brass Shells, finished Brush Brass or Polished Brass can be furnished, but they are considered special, and longer delivery will always be necessary than on orders for standard goods.

TOPS.

Type K lamp tops are formed from one-eighth inch thick cold rolled sheet steel. These tops are ordinarily finished in Bright Enamel, except for lamps with shells finished in Dull Black, when tops are also finished Dull Black.

Lamps with Brass Shells have sheet brass rings finished to match shells to cover edge of tops.

If these rings are desired on *standard* lamps, a charge of 30 cents per lamp extra is made.



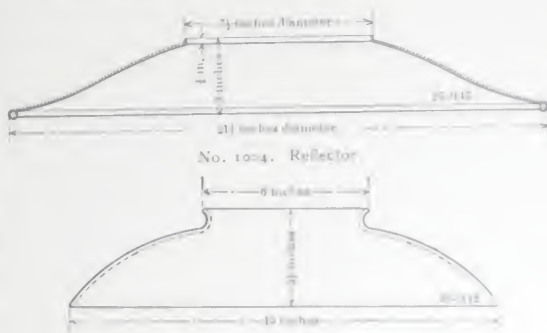
FIGURE 10. STANLEY-G. I. IMPROVED HANGER BOARD AND SWITCH FOR INTERIOR ARC LAMP SUSPENSION.

GLASSWARE.

Simplicity applies not only to the mechanical construction of the K arc lamps, but to the arrangement of glassware and reflectors as well. The four cuts on this page represent standard globes, with which any desired combination of light diffusion can be obtained.



No. 43. Outer Globe.



No. 38. Porcelain Reflector.

No. 19 inner bulb and No. 43 outer globe are standard for all types of K lamps, and can be furnished either clear or opal. Combinations for different intensities and conditions of illumination are described on page 3 of this bulletin, and in the different captions. No. 38 Porcelain Reflector with a 6-inch top and 16-inch bottom opening is also standard for the K type of lamp.

No. 1004 reflector is of steel white fire enameled. The metal reflector is securely attached to the shell by means of three cast lugs with screws and washers. The outer globe may be lowered for purpose of trimming lamp without lowering the reflector.



No. 19. Inner Bulb.

LIST PRICES OF GLOBES AND REFLECTORS.

No. 19	Clear Bulb	per doz.	\$3.80
No. 19	Opal Bulb	per doz.	4.40
No. 43	Clear Outer Globe	each	1.08
No. 43	Opal Outer Globe	each	1.38
No. 38	Porcelain Opal Reflector	each	1.14
No. 1004	Metal Reflector (Fire enameled)	each	2.50

PACKING CHARGES.

A Standard package of the No. 19 inner bulbs consists of either 3 dozen or 6 dozen, on which there is a packing charge of 40c. net for the former and 50c. net for the latter.

The No. 43 globe, when in small quantities, is packed two in a barrel. When packed in large quantities, 12 to a crate. Packing charges, 30c. and 75c. net respectively.

The No. 38 Porcelain Reflector packed 10 in a barrel. Packing charge, 50c. net per barrel.

Packing charges less than quantities mentioned are the same as minimum prices mentioned, for example, the packing charges on 6 No. 19 inner bulbs, 40c. net.

Allowances can not be made for breakage under 5% of total shipment.

THE Stanley-G. I. Electric Manufacturing Company is a consolidation of the Stanley Electric Manufacturing Company, of Pittsfield, and the General Incandescent Arc Light Company, of New York. The Stanley Company's product, marketed under the well known trade name of the S. K. C. System, comprises generators, transformers, rotary converters, motor generator sets, switchboard apparatus, induction motors, etc. The General Incandescent Arc Light Company has been favorably known as builder of the high grade G. I. arc lamps, incandescent lamps, alternating current and direct current motors, and general and special electrical supplies.

The engineers of this company for years have made a special study of outside as well as interior electric lighting, and their services are at the disposal of prospective customers.

LIST OF BRANCH OFFICES

ATLANTA, GA.	- - - - -	EMPIRE BUILDING
BOSTON, MASS.	- - - - -	OLIVER BUILDING
CHICAGO, ILL.	- - - - -	MONADNOCK BLOCK
CLEVELAND, O.	- - - - -	CITIZENS BUILDING
CINCINNATI, O.	- - - - -	FIRST NATIONAL BANK BUILDING
DETROIT, MICH.	- - - - -	CHAMBER OF COMMERCE
KANSAS CITY, MO.	- - - - -	POSTAL TELEGRAPH BUILDING
MINNEAPOLIS, MINN.	- - - - -	GUARANTY BUILDING
NEW YORK, N. Y.	- - - - -	42 BROADWAY
OAKLAND, CAL. (Temporary)	- - - - -	BLAKE BLOCK
PHILADELPHIA, PA.	- - - - -	NORTH AMERICAN BUILDING
ST. LOUIS, MO.	- - - - -	CENTURY BUILDING
SEATTLE, WASH.	- - - - -	PIONEER BUILDING

SUPPLY AGENTS

BUTTE, MONT.	- - - - -	MONTANA ELECTRIC CO.
DENVER, COLO.	- - - - -	HENDRIE & BOLTHOFF
		MFG. AND SUPPLY CO.

FOREIGN DEPT., 47 BROADWAY, NEW YORK CITY